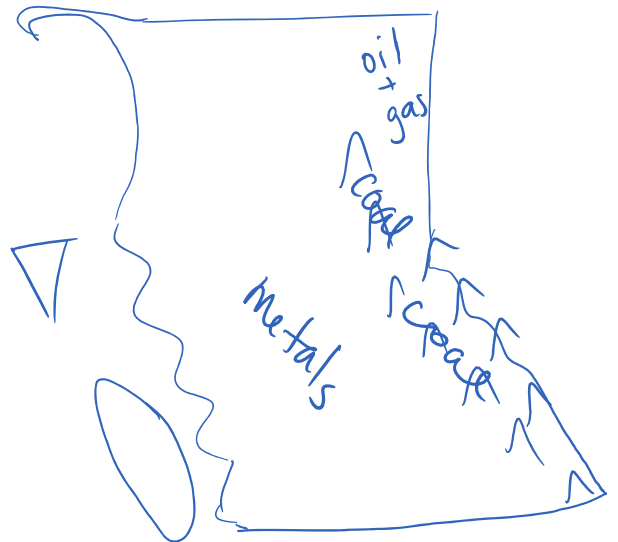


# Geology of BC : Resources

January 27, 2020 11:01 AM

- when N.A. west coast was flat (before collision causing Rockies) it was a tropical climate (N.A. was closer to equator)
  - AB was an inland sea
  - BC had swamps
- petroleum/oil/gas formed from remains of marine organisms (AB and NE BC had inland sea)
- coal formed from plants falling into swamps → now have coal in Rockies.
- metals from sulphide minerals (ex chalcopyrite, galena, etc) are formed in areas where volcanics have occurred
  - subduction zone (Cascades)
  - roots of volcanic islands that collided (Coast Mts)
  - hot spot volcanoes (Anahim chain)
- non-metals : gypsum precipitates out of solution (evaporite)
  - sulfur
  - gravel pits, etc



## Important BC Resources

| <u>ore mineral/rock</u> | <u>metal</u> | <u>use</u>                      |
|-------------------------|--------------|---------------------------------|
| sphalerite              | Zinc         | galvanizing, vitamins, ointment |
| chalcopyrite            | copper       | wiring, pipes                   |

Native Elements  
(find as pure substances)

copper  
gold  
silver

|                                    |            |                     |
|------------------------------------|------------|---------------------|
| chalcopyrite                       | copper     | wiring, pipes       |
| bornite                            | copper     | " "                 |
| molybdenite                        | molybdenum | in steel            |
| galena                             | lead       | batteries, paint    |
| hematite                           | iron       | tools, steel        |
| <sup>mined in S.A. →</sup> bauxite | aluminium  | cans, boats, siding |

gold  
silver  
platinum

|                   | <u>non-metal mineral</u> | <u>use</u>                        |
|-------------------|--------------------------|-----------------------------------|
| Sed.              | { gypsum                 | wall board, plaster               |
|                   | { limestone              | cement, fertilizer                |
| ig.               | - Sulfur                 | matches, sulfuric acid, gardening |
| meta.             | { asbestos               | cancer-causing, insulation        |
|                   | { talc                   | soapstone carving, powder         |
| porphyry or meta. | - mica                   | insulator - oven doors            |
|                   | gravel, sand             | construction                      |

## How to find resources?

- dense minerals located by changes in gravity
- magnetite<sup>→ iron</sup> located by changes in magnetic field (locally)
- sulphide minerals decrease electric current in ground
- petroleum located using seismic data
- core samples look for high concentrations.

## Types of Deposits

## Magmatic

- Kimberlite pipes bring diamond to surface
- gravitational settling in magma chamber concentrates heavy minerals: magnetite, etc.
- pegmatites grow in thin, residual magmas

## Hydrothermal

- ocean water seeps into cracks near ridge (cold, dense  $H_2O$ )
- sinks down close to magma and heats up.
- $H_2O$  is so hot it dissolves metals from rocks
- as hot water rises, it cools and deposits the metal in one spot
- diff. metals will solidify at diff. temperatures

## Evaporites

- seawater in restricted basin dries up leaving mineral  
ex gypsum, halite

## Place Deposit (gold panning)

- sed. deposits in which dense minerals are concentrated in slower areas of streams (inside of curve, behind rocks, etc) → gold, diamonds, platinum ...

